

(Mock - 2)

Mock Exam Ciss - 2025

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Batch # 59 (online)

General Science & Ability

Section - I

Q2:a Global warming, which is a global threat, is hitting the developing and least developed world the most. What measures should be taken to counter it in COP-29?

To counter global warming in COP-29, measures could include:

1- Reducing greenhouse gas emissions:

Implement policies to decrease emissions from fossil fuels, agriculture, and industry.

2- Transitioning to renewable energy sources:

Invest in solar, wind, hydro, and geothermal energy to reduce dependence on fossil fuels.

3- Increasing energy efficiency:

Implement energy-saving technologies and practices in buildings, transportation, and industry.

4- Electrifying transportation:

Promote electric vehicles and public transportation to reduce fossil fuel use.

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5. Carbon Capture and Storage:  
Develop technologies to capture and store CO<sub>2</sub> emissions from power plants and industrial processes.
6. Protecting and reforestation:  
Preserve and restore forests to maintain their carbon sequestration capabilities.
7. Climate Change adaptation and resilience:  
Support vulnerable communities in development adaptation strategies and building resilience.

B. Here are the functions of arteries, veins, and capillaries:

1. Arteries:

- Carry oxygenated blood away from the heart to the rest of the body
- Have thick walls to withstand high pressure.
- Divide into smaller arterioles and heart.

2. Veins:

- Carry deoxygenated blood back to the heart.
- Have thinner walls and less pressure than arteries.
- Merge into larger venules and eventually the superior and inferior vena cava.

3. Capillaries:

- Allow for exchange of oxygen and nutrients with cells.



- Have thin walls and are highly permeable
- Form a network that enables gas and nutrient exchange.

C- What do atoms form? Chemical bonds?  
 Explain Structure of Water? ( )

Atoms form chemical bonds to gain stability and valence electrons. Water ( $H_2O$ ) has a bent shape due to unequal sharing of electrons, resulting in polar covalent bonds.

1- Atomic Stability:

Atoms seek a full outer energy level, which is achieved by sharing or exchanging electrons.

2- Chemical bonds:

Formed when atoms share or exchange electrons to achieve stability.

3- Water Structure:

Oxygen shares electrons unequally with hydrogen atoms.

Resulting in a slightly positive charge on hydrogen and a slightly negative charge on oxygen.

This polarity gives water its unique properties and biological importance.

D- What are conductors, semiconductors, metals, plastics, and ceramics? Give an example of each.



Here are examples of each:

Conductors:

Copper: Highly efficient conductor, widely used in electronics and electrical wiring.

Characteristics: High conductivity, malleability, and ductility.

Semiconductors:

Silicon: Used in electronics and computer chips, intermediate conductivity

Characteristics: Can control conductivity, used in transistors and solar cells.

Metals:

Aluminum: Good conductor, malleable, and widely used in aircraft and packaging

Characteristics: High conductivity, strength, and corrosion resistance.

Plastics:

Polyethylene: Insulator, flexible, and widely used in packaging and plastic bags.

Characteristics: Low conductivity, lightweight, and resistant to corrosion.

Q5, A: What is artificial intelligence and is it possible for artificial intelligence to outsmart humans?

Ans: Artificial intelligence (AI) refers to the development of computer systems that can perform tasks that typically



require human intelligence, such as learning, problem-solving, and decision-making. Whether AI can outsmart humans is a topic of ongoing debate. While AI has made tremendous progress in recent years, it still has limitations and is not yet capable of surpassing human intelligence in many areas.

Types of AI :

Narrow or weak AI (e.g. Siri, AlphaGo)  
 General or Strong AI (hypothetical, human-level intelligence)

AI applications :

machine learning  
 Natural language processing  
 Computer vision  
 Robotic  
 Expert systems

B. Define rocks formation, rock cycle and different types of rocks?

- Rocks formation :-

Rocks are formed through geological processes, including cooling and solidification of magma or lava, cementation of sediments, and metamorphism of existing rocks.

- Rock cycle :-

The rock cycle describes the continuous process of rock formation, transformation and destruction. It involves the



The three main types of rocks are igneous, sedimentary, and metamorphic.

Types of rock :-

- 1- igneous rock
- 2- Sedimentary rock
- 3- metamorphic rock

C. Explain carbohydrates and its types?

Ans: Carbohydrates are biomolecules that serve as energy sources for cells. The main types of carbohydrates are:

Types :-

- 1- monosaccharides: (Simple Sugars)  
Example include glucose, fructose, and galactose
- 2- Disaccharides:  
Formed by linking two monosaccharides, examples include sucrose (table sugar) and lactose (milk sugar)
- 3- polysaccharides: (Complex carbohydrates)  
Examples include cellulose, starch and glycogen.

D. What are the benefits of balanced diet?

Balanced diet benefits:

- 1- optimal nutrition
  - Essential nutrients
  - Vitamins
  - Minerals



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- 2- Energy and performance:
  - physical energy
  - mental performance
  -
- 3- weight management:
  - Healthy weight
  - Body composition
4. Disease prevention:
  - chronic disease
  - Infections
- 5- Improved mental health:
  - mood regulation
  - Cognitive function
- 6- Healthy digestion:
  - Regular bowel movements
  - Prevents Constipation

Q7:A Define I.Q what are factors which affects I.Q?

Ans: I.Q (Intelligence Quotient) is a score derived from one or more standardized tests designed to assess human intelligence. Factors that affect I.Q include:

- 1- Genetic
- 2- Environment
- 3- Nutrition
- 4- Education



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5- Socioeconomic Status

6- Health

7- Culture

B. What is Circumference of a circle with radius 4cm?

The Circumference of a circle with a radius of 4cm is

$$\begin{aligned}\text{Circumference} &= 2 \times \pi \times \text{radius} \\ &= 2 \times 3.14 \times 4 \text{ cm} \\ &= 25.12 \text{ cm} \text{ Ans}\end{aligned}$$

C. Age of 5-student is 20, 22, 21, 21, 23.  
Find mean, median, mode and range?

For the ages of the 5 Students:

mean :-

$$\begin{aligned}\text{Sum of ages} &= 20 + 22 + 21 + 21 + 23 = 107 \\ \text{mean} &= \frac{\text{Sum of age}}{\text{Number of Students}} \\ &= \frac{107}{5} \quad \frac{107}{5} \\ &= 21.4\end{aligned}$$

Median :-

Arrange ages in order: 20, 21, 21, 22, 23

$$\begin{aligned}\text{median} &= \text{middle value} \\ &= 21\end{aligned}$$

mode :-

most frequent age: 21 (appears twice)

$$\text{mode} = 21$$

Range :-

Highest age - lowest age



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$$= 23 - 20$$

$$= 3$$

D. Tahir started a business with a Capital of Rs. 15,000. After 5 months Umar also joined him with an investment of Rs. 30,000. At the start of 9<sup>th</sup> month, Usman joined them by investing Rs. 45,000. At the end of the year they earned a profit of Rs. 406,000. Find the share of each one.

Ans: To find the share of each person in the profit:

$$\begin{aligned} \text{Total investment} &= \text{Tahir's investment} + \\ &\text{Umar's investment} + \text{Usman's investment} = \\ &= 15,000 + 30,000 + 45,000 \\ &= 90,000 \end{aligned}$$

Profit Sharing ratio = investment ratio

$$\begin{aligned} \text{Tahir} : \text{Umar} : \text{Usman} &= 15,000 : 30,000 : 45,000 \\ &= 1 : 2 : 3 \end{aligned}$$

$$\text{Total profit} = \text{Rs } 406,000$$

$$\begin{aligned} \text{Tahir's Share} &= \left(\frac{1}{6}\right) \times 406,000 \\ &= 67,667 \text{ Rs.} \end{aligned}$$

$$\begin{aligned} \text{Umar's Share} &= \left(\frac{2}{6}\right) \times 406,000 \\ &= \text{Rs. } 135,333 \end{aligned}$$

$$\begin{aligned} \text{Usman's Share} &= \left(\frac{3}{6}\right) \times 406,000 \\ &= \text{Rs. } 203,000 \end{aligned}$$



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Q6:A The total population of a village increased from 18,000 to 22,500 in a decade. What is the percentage increase of population per year of that village?

Ans: Population increase =  $22,500 - 18,000$   
 $= 4,500$

Percentage increase =  $(4,500 / 18,000) \times 100\%$   
 $= 25\%$

Percentage increase per year =  $25\% \div 10 \text{ Years}$   
 $= 2.5\% \text{ Per Year}$

B. A Soap factory makes 600 units in 9 days with the help of 20 machines. How many units can be made in 12 days with the help of 18 machines?

Units made in 9 days = 600

Units made per day =  $600 \div 9 = 66.67 \text{ Units/day}$

Units made by 18 machines in 1 day =  $3.33 \times$

$18 = 60 \text{ units/day}$

Units made in 12 days =  $60 \times 12 = 720 \text{ Units.}$

C. A car covers a distance of 450m in 1 minute whereas train covers 69km in 45 mins. Find the ratio of their speeds?

Car's Speed =  $450\text{m} / 1\text{min} = 450\text{m/min}$

Train's Speed =  $69\text{km} / 45\text{mins} = 1.533\text{km/min}$

Ratio of Speeds = Car's Speed : Train's





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$$\begin{aligned} \text{Speed} &= 450 \text{ m/min} = 1.533 \text{ km/min} \\ &= 450 \text{ m/min} = 1533 \text{ m/min (convert km to m)} \\ &= 1:34 \text{ hrs} \end{aligned}$$

D. Find perimeter of a pentagon with each side equal to 15cm?

$$\begin{aligned} \text{Ans.} \quad \text{perimeter of a pentagon} &= 5 \times \text{side length} \\ &= 5 \times 15 \text{ cm} \\ &= 75 \text{ cm} \end{aligned}$$